documentary novel "Cold-blooded murder"]. Uchen. Zap. Kazan. Un-ta [Scientific notes of Kazan University]. Vol 155, book 2 (2013), pp. 197–206.

20. H. Frank. Smotret' i videt' [Watch and see]. Iskusstvo kino [Art of cinema], № 3 (2004). http: kinoart.ru/a rchive/2004/03/n3-article19 (Accessed 20.08.2020).

21. N. M. Zorkaya. "Vysshij sud" v rajonnom sude. Opyt vstrechi kinoveda s sovremennym neigrovym kino ["Higher court" in the district court. Experience of meeting a film critic with modern non-fiction cinema].Vzryv. Bytie i byt dokumental'nogo kino v konce vos'midesyatyh [Explosion. Life of documentary films in the late eighties.]. Moscow (1991), pp. 30–48.

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Interaction "Journalist — Robot Journalist": Communicative Advantages and Social Responsibility

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Abstract. The relevance of the study is based on the statement of the problem of "replacing" journalists with robots and the prospects for the disappearance of the profession. The purpose of the work is to analyze the communication advantages and assess the menace of using robotic journalism based on examples of Russian and foreign media during the period 2016–2020. In the work, such concepts are used to avoid an extended interpretation of the notion "artificial intelligence" in journalism; the problem of social responsibility of journalists is raised when creating content using artificial intelligence technologies.

Keywords: artificial intelligence, media communication, mass media, robotic journalism

1. Introduction

Analysts at Yandex in July 2020 conducted a study that included an analysis of headlines about artificial intelligence (AI) news from 2010 to 2020, and found that the number of such news has doubled [Russians still consider AI

to be a miracle, the study showed, 2020]. AI actively writes music and draws, predicts the results of sports competitions, diagnoses diseases — in general, does everything to surpass a person and deprive him of his future work.

If we start looking for information about the future of a specific profession, — a journalist, then we will inevitably come to publications about the "replacement" of journalists with robots, to a discussion of the terms of the disappearance of the profession in connection with this "replacement" [Robot journalists write no worse than people, 2016; Krendelev, 2019]. After all, the machine already knows how to quickly translate, compose texts of a certain genre and on a certain topic, has the copyright for the content being created. Such a precedent occurred in a Chinese court, which stated that articles created by the automated Dreamwriter software for the Tencent Securities website have "a certain originality" [Artificial Intelligence for Writing in Media and Literature, 2020] and met the legal requirements for works of the form of presentation and of the stages of text creation (selection, analysis and processing of information), and, therefore, the created text was under the law on copyright protection.

Since 2016, Forbes magazine has been using a specialized writing platform created by Narrative Science. The co-founder of this company, Christian Hammond, believes that this area has serious prospects and in 15 years 90 % of all texts in the world will be written by artificial intelligence [Wakefield, 2015]. Vladimir Sungorkin, General Director of Komsomolskaya Pravda, agrees with this opinion, noting the competitiveness of robotic journalists in the labor market, which have a number of advantages: a clearly structured algorithm for writing text can be implemented into a robot, which will allow an increase in the readability of news notes [Golitsyna, 2015].

On the opposite side is the opinion of Yuri Pogorely, Executive Director of the Financial and Economic Information Service of Interfax, who is convinced of the inability to replace human intelligence with artificial intelligence: "Robots are not able to feel an interesting story — they are only able to answer the questions posed" [Ivanov, 2016] By the way, Christian Hammond later commented on his famous phrase about 90 % of all texts in the world written by AI: "This does not mean that 90 % of journalist jobs will disappear. This means that journalists can expand their areas of activity. The world of news will expand. Journalists will not create stories based on data. These unambiguous and inaccessible for interpretation materials will be executed by machines" [Wakefield, 2015].

1.1. Resources

The relevance of the study is based on the statement of the problem of "replacing" journalists with robots and the prospects for the disappearing of the profession. According to the research group of the Faculty of Journalism of Moscow State University named after M. V. Lomonosov under the leadership of Tatyana Frolova, 45 % of media workers are afraid of losing their jobs due to the robotization of journalists' activities [Research: Journalists are afraid of losing their jobs due to robotization, 2019]. Several groups demonstrated a "cautious distrust" of news generated by robotic journalists for fear of program interruptions. However, the same audience recognized the objective benefits of robots, which are faster and more accurate than human staff, and also save resources and time for true journalistic creativity.

Many practicing journalists believe that the very formulation of the issue is incorrect: it is not about a confrontation between human journalists and robots, but "a confrontation between people who believe or do not believe in the symbiosis of a machine and a person" [Ivanov, 2015, 33–34]. This is how the general director of Meduza, Galina Timchenko, sees the situation: "I really think that 90 % of the rough work on preparing texts can be given by a machine, but 10 % — the most important part — will still be done by a journalist or editor. Do not confuse media service and mass media".

The purpose of this study is to analyze communication advantages and assess the menaces of using robot journalists studying examples of Russian and foreign media for the period 2016–2020.

1.2. Methodology

In order to study the experience of using robotic journalist in Russian and foreign media, it is necessary to define notions and terms of the study issue. The head of the Yandex machine learning laboratory, Alexander Krainov, complains that when the media writes a lot about AI, it always tries to make headlines as attractive as possible, which leads to a misunderstanding of what artificial intelligence is" [Russians still consider AI a miracle, the study showed, 2020].

Journalism researchers note the fact of too extended or incorrect interpretation of the term "artificial intelligence" by journalists, which creates the illusion that artificial intelligence already exists. Scholars [Shesterina and Shesterin, 2020] define the main difference between machine learning and neural networks from artificial intelligence as the ability to find extraordinary solutions for problems outside the existing ideas about the reality. It turns

out that machine learning, which is based on neural networks, is a process that is described in many works on journalism as artificial intelligence itself. There is an objective need to introduce concepts that can distinguish abovementioned equal notions from the point of view of an "inexperienced reader", but fundamentally different ones from the scientific point of view. Scientists of the Faculty of Journalism of Moscow State University considers automated solutions related to natural language as part of artificial intelligence technologies, but not as a phenomenon itself. The scholars use in their research such a category as "robotic journalism", meaning by it the algorithms created both for processing media texts by robots in order to identify connections between its structures, and for the automated generation of the texts themselves [Zamkov, Krasheninnikova, Lukina andTsynareva, 2017].

Thus, it is possible to reveal the fact of substituting a process of machine learning based on neural networks for the notion of "artificial intelligence". During this research we will distinguish a process, which is only one of the aspects of the functioning of artificial intelligence, and artificial intelligence itself, and we will study precisely robotic journalism connected with the implementation of machine learning based on neural networks into the process of journalistic work.

2. Study description

2.1. Communication advantages: what can a robot journalist do?

1. Create content. The first application of neural networks in journalism is content generation. If there is a newsbreak, then a neural network writes the text due to a natural language processing algorithm. There are publications that use it for routine newsbreaks — stock exchange reports, orfinancial performance of companies.

For example, *Worldsmith* platform creates notes, news, articles, reviews and other types of content, generating up to 2,000 notes per second [Ivanov, 2015, 37]. Many well-known companies — Yandex, Yahoo, Allstate — are already using the neural network. The advantage of the platform is that you do not need to look for a copywriter to write a note about an event — *Worldsmith* will generate the news in a few seconds.

Associated Press uses automatic content generation for financial news that has little analytics but lots of numbers and evidence. Before the invention of such programs, *Associated Press* reporters reviewed the earnings reports of US public companies every quarter, proccessed financial data and

published them. This long hectic work ended up with the agency releasing 300 articles per quarter, while modern content generation platforms allows generating 4,400 articles per quarter. The materials have a high reliability, quality and explanation that this material was written by a robot [Boldyreva, 2019]. Such software is made by *Narrative Science, Automated Insights*. If you go to their sites, you can see a lot of real cases — examples of publications written by robots. All of these articles are based on data facts.

An example of robotic journalism is *The Washington post* experiment on automated news writing using the intelligent software of Heliograf [Underwood, 2019]. The bot debuted in summer 2016 at the Olympic Games in Rio, generating news by analyzing game data as it emerged and adding relevant phrases to the data in templates. Also, this program creates about a third of its content using an intelligent system that produces articles on the company's financial statements.

Thus, this works great for factual information, but for more serious newsbreaks, the content generated by the neural network needs to be transformed into a more meaningful text.

1. Machine learning is used to classify and find hidden logics in data. For example, editors have a set of newsbreaks or publications that is needed to be classified, that is, automatically assign certain tags to them. Or there are texts with a large number of words that need to be divided into classes, interests, moods, etc. The machine is shown as many already marked up texts with a large number of classes as possible, after which a new text is given, and the machine itself classifies it into the area to which it belongs. Thus, the machine was trained by showing a larger number of texts already marked by class, and when a new newsbreak appears — from the Internet, social networks, news agencies — the machine understands where it belongs, what its subject matter is, what mood it conveys and for which audience it can be applied.

The popularity or rating of the newsbreaks is predicted in a similar way: the assessment of the popularity of the content is calculated by the number of links or mentions of a given page on other resources. The result is a kind of rating, in which, however, it is worth considering not only the quantity, but also the quality of resources. After all, it is one thing when a publication is referenced by five unknown pages, and quite another when the links are provided by major news agencies. Such accounting for quality allows you to build a hierarchy of ratings, which is an effective method for automated assessment

of the significance of information. If you count not only mentions, but also their significance, you can automatically sort all newsbreaks for specific target audiences. Therefore, recommendations are mainly used for such targeting. For example, the VKontakte neural network "Prometey" is able to view user profiles and find authors with unique content. Active communities with interesting posts receive a fire badge, additional coverage, and tips for promoting the community. The incentive is given for seven days. In the first six months, Prometey found and noted more than four thousand authors [Paranko, 2018].

The neural network classifies texts, and now more and more such materials are published in the media.

2. Evaluate perception or conduct A / B testing. The neural network is able to write and validate several forms of publications for different target groups. This process can be fully automated and the robot can be taught to write the same content for different channels and target audiences. For example, there are several forms of publication, and you need to test how they will be reflected in different target groups. Using this kind of method, this process can be fully automated, which will especially appeal to those who need to write the same content for different channels, resources or target audiences. To publish an article that has already been published in another edition, you cannot just copy-paste. To adapt it, you can either involve a copywriter, or use a neural network. For a computer, this is even easier than machine translation: the text does not need to be converted into another language, syntax, and so on.

3. Using machine learning to personalize content. Machine learning news feeds are a personalized feed of posts aggregated from other resources that are selected based on machine learning, taking into account a user's specific preferences (explicitly expressed through previous actions or hypothesis). This process is based on data of a user's views, likes and comments, in this case, "contextual journalism" functions: thanks to artificial intelligence, he reads a selection of texts that he likes. This is similar to the principle used by social networks: *Facebook, Instagram, VKontakte, Twitter* analyze the interests of audiences based on their users' actions and offer personalized content.

Many foreign online magazines use the same principle, applying machine learning for personal mailings and for moderating readers' comments: an application programming tool called *Perspective*, developed by *Jigsaw* and *Google* [Underwood, 2019], filters comments with obscene language or defiant behavior so that moderators can see them immediately and react to them in real time.

Twitter users can sort the displayed content by popularity or by time of publication. These options are possible due to application of machine learning. Artificial intelligence analyzes each tweet in real time and evaluates it according to several indicators. The algorithm first of all shows those posts that are more likely to be liked by the user. In this case, the choice is based on his personal preferences.

The social network *Facebook* uses a neural network to analyze the photos uploaded by users. Artificial intelligence detects if a photo or video contains certain body parts, and does not allow pictures that do not comply with *Facebook* policy.

In an international study by *Kleiner Perkins Caufield* & *Byers* (KPCB) carried out in 2017 [Meeker, 2018], the trend of news consumption through viewing feeds that gather the most interesting posts based on machine learning was highlighted as one of the main ones nowadays and considered using the example of Chinese media market. It is used by the giants of the Chinese market *Toutiao, Baidu, Weibo, Tencent*. Chinese news apps such as *Jinri Toutiao, Qutoutiao and Kuaibao* are world leaders in using machine learning to create personalized news from a range of media. *Toutiao* has about 120 million users with an average time to be present on the site of more than an hour every day [Delyukin, 2018]. These apps are now spreading across Asia thanks to *Newsdog*, one of the most popular aggregators in India. The owners of *Toutiao* and *Bytedance* are investing in similar apps in Indonesia.

On the media market in Russia, among the news feeds that select the most interesting posts based on machine learning are *Dzen* from *Yandex, Stat'i dlya vas* from Google, *MyWidget* from Mail.Ru Group. *Yandex.Dzen* is the leader in the audience of all the feeds mentioned above [Pershina, 2019]. This service automatically creates a feed of interesting news based on the personal preferences of each of its users. The post selection algorithm is based on neural networks. Among the specialists involved in filling such feeds with the content of their projects, the use of the term "dzen" has already become widespread in relation to all such feeds. Why do companies need such feeds? Driving Usage + Advertising Growth [Meeker, 2018]. In 2017, at the *Yandex YAC* conference, Viktor Lamburt, the head of the *Yandex.Dzen* service, announced that traffic to sites from his project surpasses traffic from any of the social networks represented in Russia [Lamburt, Trabun, Solomentsev and Bakunov, 2017]. Based on these data, market experts believe that *Yandex.Dzen* has become one of the largest content and advertising platforms on the Runet.

Thus, among the main communication advantages of robot journalists there are the following:

1. Processing a large amount of data. If the editors' office has a large number of sources, then the machine will be able to automatically classify the information received from them, choosing the most adequate.

2. High speed of writing texts and video processing. If you need to process newsbreaks, then a robot journalist is a great tool. *YLE* company, with the help of the *Voitto* program [the first of its kind in the world, 2018], generates about 100 sports news and 250 illustrations every week. News agencies are also improving their content thanks to the Finnish news agency *STT*, which automatically translates news into English and Swedish [Newman, 2019].

3. Reducing the time a journalist spends on routine work. Robots allow you to focus on the content, and not on the process of adapting it to different forms. *Forbes* created a robot Bertie [Martin, 2019], whose "duties" include recommending the topic of an article for a specific author based on his previous publications, writing a draft article, which the author can simply improve, and not to write a full text from scratch. *Reuters agency* has created a program that can suggest article ideas. The program is able to write a part of an article for a journalist, but not replace a person.

4. Checking fake news, content verification, accuracy of facts, fact-checking. The speed and high quantity of news force journalists to use special algorithms that help to search for news and verify its authenticity in real time. *DataMinr* used a neural network to check millions of tweets. Its algorithms distinguish extraordinary tweets that helps newsmaker to stay updated [Krendeleva, 2019]. *Associated Press* has developed a tool to help journalists to check multimedia content in real time; *The Reuters News Tracer* is a social monitoring tool that can identify fake news on Twitter by analyzing millions of tweets with nearly 80 percent accuracy [Underwood, 2019]. Trend analysis and predictions are mainly practiced in business and sports journalism. So *Associated Press* plans to release 40,000 automated materials, mainly containing business and sports news.

5. Determination of audience preferences and user personalization is based on the account of views, likes and comments. Thanks to machine learning, the user reads selected texts that he likes, that is a personalized content. *Financial Times* has launched an algorithm that analyzes how many articles on a given topic have been read by the user and, based on this data,

displays the most relevant for the reader, and also shows the level of awareness in a particular topic. This was called the scoring algorithm [Boldyreva, 2019].

2.2. Robotic journalism: an intellectual stimulation of live communication?

Robot journalists are successfully used not only in creating texts, but also in scoring news. Virtual news programs already exist: China's state news agency *Xinhua* has unveiled a robotic news feed that simulates voices, lip movements and expressions of real speakers. A digital news speaker with artificial intelligence is almost indistinguishable from the live one. Xinhua does not reveal the details of how the digital speaker was created [Baraniuk, 2018], but considering the image, it is a combination of computer graphics and videos with a real host. If you don't look closely at details, it is difficult to identify a substitution.

Likewise, Japan's national public broadcaster *NHK* has produced anime news programs. The program was developed by one of the leading manga artists and looks like a young female reporter *Yomiko* [Public broadcaster's AI newsreader to make senryu poetry debut, 2019]. She appears in the main *NHK* news stream and also reads news through *Amazon Alexa* and *Google Home.*

The first virtual TV speaker in Russia was created to lead broadcasts of Sberbank TV. TV reporter Elena adjusts facial expressions to the meaning of the information message.

Thus, robot speakers are sometimes even a "twin" of a human speaker and are often much more convenient than a living one: they can work around the clock, do not make mistakes and do not require payment for their work. Initially, it arouses interest in the audience, but in the end the audience does not like the demonstration of the lack of human warmth and the lack of a sense of humor, but experts believe that in the future it will be possible to program all of this.

3. Results and discussions

The following menaces of usage of robotic journalism can be defined:

1. Menaces for professional journalists. The problem of job places disappearing and minimizing the demand for journalists in the future is only a light threat. A far greater evil is the consequences of the ease with which robot journalists create basic publications. There will be more automatically generated content than human-written ones. In the US and Germany, studies were conducted in which groups of journalists were shown a large number of articles, half of which were written by humans and half by machines [Heinrichs, 2018]. On average, people couldn't tell them apart. Moreover,

when the group was asked to classify texts according to reliability and interest, it turned out that they found machine-written texts more reliable. Thus, the generated content is perceived by the audience as more reliable and readable, which makes it possible to form a tool for manipulating consciousness.

2. Creation of echo chambers. The content is personalized based on the similarity of consumer interests, taking into account the consumption of the user and people similar to him, which creates a closed information field. Personalization can lead to the fact that human values will be ignored, do not enter the user's personal echo chamber.

3. Easy creation of information bubbles and fake news. By creating consciously a "desired" event or news, robot journalists instantly write many different versions of publications to imitate their authenticity. Fake information is broadcast to huge audiences through various sites and media platforms.

4. Blurring the boundaries of professional journalist ethics. A robot journalist does not sign codes of ethics and has no obligations in front of readers, although there are already suggestions to include a case of use of AI in codes of journalist ethics [Chadwick, 2018]. Trust and personal data, interference in private life and discrimination of all kinds are obvious ethical issues that the robojournalist does not take into account. We always talk about data and trust, which in this case are linked. How much we collect and how we use the data is another matter. Obviously, the data cannot be collected (legally) without the user's permission, but you can offer the user something in return, and now he already agrees to give his personal data (for example, 40 % of Germans did not see a particular problem in case they were allowed use of the services for free [Heinrichs, 2018]).

5. Popularity-based algorithms encourage clickbait, virus videos and other sensational material. Because of this, the Chinese government has suspended a number of applications, including *Toutiao.*

Publishers want to invest more in developing the potential of machine learning. In the report conducted by the *Reuters* Institute for the Study of Journalism, Nick Newman gives an example of a survey according to which media executives are more likely to invest in journalism training [Newman, 2019]. Editors say that machines still cannot replace humans, although more than 70 % of publishers are implementing machine learning for the following purposes: to personalize content and improve audience recommendations; to automate a great number of stories and videos; to help and support journalists in information overload.

4. Conclusions

One of the main questions that the development of artificial intelligence poses to humanity is how to adapt ethics to new realities, who is responsible — a person or a machine?

The question for editors is how to responsibly use the algorithms on their websites and applications, and how to tell users what is going on. The Finnish TV company *YLE* spent a lot of time solving these problems, and as a result they developed the intelligent assistant *Voitto* [The first of its kind in the world, 2018]. It collects feedback on content recommendations right on the lock screen. *Voitto* is designed to build a constant dialogue with users in order to understand what kind of content they are choosing. This smart assistant does not take into account clicks rating as a primary measure of success, but shows how many people are using *Voitto* and whether they are happy with the number and type of recommendations the program provides.

Charlie Beckett, head of the *Polis* project at London School of Economics, is studying the challenges of educating robot journalists for newsrooms. The project is supported by *Google* and aims to investigate the responsibility of journalists when creating content using artificial intelligence technologies. Commenting on his involvement with the project, Beckett said: "There are many editorial and ethical issues related to transparency (or lack of it) and systematic deviation of algorithms and programs. The last thing that journalism needs now is to further weaken the credibility of its work" [Krendeleva, 2019].

Behind each robot there is a person who programs it and sets the vector of behavior, but in addition to the given intentions, the intellectual system can also adopt the prejudices of its "creator". This implies the idea of responsibility not only of programmers, but also of journalists themselves, because the ideal process of creating content using machine learning involves a "man-machine" interaction. A person is not excluded from the content preparation process, and robots can be considered as additional tools that speed up and simplify the process andremove routine tasks.

Intelligent algorithms are designed for the instant calculation of complex operations, surpass a person with their excellent memory and never feel tired. Psycholinguist Tatiana Chernigovskaya believes that "the brain is not just a high-power computing machine. Inside the human brain, we observe at least two phenomena that move humanity forward. The first is intuition. The second phenomenon is imagination. It is more important

than knowledge, because, unlike knowledge, imagination has no boundaries" [Bzegezhev, 2020]. Thanks to intuition and imagination, a person is able to go beyond the boundaries of the known, which is not available to AI. Let's hope that the future is not for robots, but for a professional who can use them productively. As the head of *Google* China, Kai-fu Lee wisely stated in his book The Superpowers of Artificial Intelligence, "if the alliance of man and machine is built on the ability of AI to think and the ability of people to love, then it can ensure our development without threatening our humanity "[cit. from: Delyukin, 2018].

It seems that robot journalism can become a blessing for the journalistic craft, provided that the media staff will learn to apply new technologies responsibly for the purpose of opening up new opportunities in journalism.

References:

1. Rossiyane poka schitayut II chudom, pokazalo issledovaniye [Russians still consider the AI as a miracle, study shows]. RIA Novosti (2020). https://ria.ru/20200730/1575148872.html (Accessed 13 August 2020)

2. Roboty-zhurnalisty pishut ne khuzhe lyudey [Robot journalists write no worse than people]. Nauka. TASS (2016). https://nauka.tass.ru/nauka/6817340 (Accessed 28 July 2020)

3. A. Krendeleva. Iskusstvennyy intellekt: pomoch' zhurnalistu, no ne zamenit' yego [Artificial intelligence: to help a journalist but not to replace him]. GIPP (2019). https://gipp.ru/overview/obzory-sobytiy-v-media-srede/iskusstvennyy-intellekt-pomoch-zhurnalistu-no-ne-zamenit-ego/ (Accessed 15 August 2020)

4. Iskusstvennyy intellekt dlya napisaniya tekstov v SMI i literature. Kogda zhurnalistov, pisateley i poetov zamenyat roboty? [Artificial intelligence for creating texts in media and literature. When will journalists, authors and poets be replaced by robots?] Tadviser (2020). http://www.tadviser.ru/index.php/Статья:Искусственный_интеллект_для_написания_текстов_в_СМИ_и_литературе (Accessed 26 July 2020)

5. J. Wakefield. Intelligent Machines: The jobs robots will steal first. BBC (2015). https://www.bbc.com/news/technology-33327659 (Accessed 11 August 2020)

6. A. Golitsyna. "Yandeks" sozdayet informagentstvo, gde novosti stanut pisat' roboty [Yandex creates an information agency where robots will write news]. Vedomosti (2015). https://www.vedomosti.ru/technology/articles/2015/10/25/614215-yandeks-informagentstvo-roboti (Accessed 10 August 2020)

7. A. Ivanov. Iskusstvennyy intellekt. Ispytaniye tvorchestvom [Artificial Intelligence. Creativity challenge]. Iot.ru. Novosti Interneta veshchey (2016). https://iot.ru/gorodskaya-sreda/iskusstvennyy-intellekt-ispytanie-tvorchestvom (Accessed 15 July 2020)

8. Issledovaniye: zhurnalisty opasayutsya poteryat' rabotu iz-za robotizatsii [Research: journalists are afraid to lose their jobs due to robotization]. RIA Novosti (2019). https://ria.ru/20191022/1560083378.html (Accessed 6 August 2020)

9. A. D. Ivanov. Robotizirovannaya zhurnalistika i pervyye algoritmy na sluzhbe redaktsiy mezhdunarodnykh SMI [Robotic journalism and first algorithms among services of international media]. Znak: problemnoye pole mediaobrazovaniya. 2 (16) (2015), pp. 32–38.

10. A. M. Shesterina, N. O. Shesterin. O korrektnosti ispol'zovaniya termina "iskusstvennyy intellekT" v mediasfere [The correct use of the notion "Artificial Intelligence" in media sphere]. Uchenyye zapiski Novgorodskogo gosudarstvennogo universiteta imeni Yaroslava Mudrogo [Research papers of Novgorod State University named after Y. Mudrogo]. 4(29) (2020). https://www.novsu.ru/univer/press/eNotes1/i.1086055/?id=1631612 (Accessed 18 July 2020)

11. A. V. Zamkov, M. A. Krasheninnikova, M. M. Lukina, N. A. Tsynarëva. Robotizirovannaya zhurnalistika: ot nauchnogo diskursa k zhurnalistskomu obrazovaniyu [Robotic journalism: from scientific discourse towards journalist education]. Mediaskop. 2 (2017). http://www.mediascope.ru/2295 (Accessed 18 July 2020)

12. A. Boldyreva. Iskusstvennyy intellekt v SMI: primery ispol'zovaniya i mediaetika [Artificial Intelligence in media: examples and media library]. Soyuz Zhurnalistov Rossii (2019). https://presscouncil.ru/novosti/5984-iskusstvennyj-intellekt-v-smi-primery-ispolzovaniya-i-mediaetika (Accessed 16 August 2020)

13. C. Underwood. Automated Journalism — AI Applications at New York Times, Reuters, and Other Media Giants. Emerj (2019). https://emerj.com/ai-sector-overviews/automated-journalism-applications/ (Accessed 19 August 2020)

14. S. Paran'ko. Kak rabotayet "umnaya" lenta i algoritm poiska talantov "Prometey" vo VKontakte [How does a smart news feed and the algorithm for searching talents "Prometey" work in VKontakte]. Sostav.ru (2018). https://www.sostav.ru/publication/kak-rabotaet-umnaya-lenta-novostej-i-algoritm-poiska-talantov-prometej-vo-vkontakte-30278.htm (Accessed 13 July 2020)

15. M. Meeker. Internet Trends 2017. Code conference (2018). https: www.kleinerperkins.com/files/INTERNET_TRENDS_REPORT_2017.pdf (Accessed 30 January 2018)

16. Y. Delyukin. Kitay pobedit v razvitii iskusstvennogo intellekta, tol'ko v eto nikto ne verit [China will win in developing AI although nobody believes it]. vc.ru (2018). https://vc.ru/books/50578-kitay-pobedit-v-razvitii-iskusstvennogo-intellekta-tolko-v-eto-nikto-ne-verit (Accessed 19 August 2020)

17. Y. D. Pershina. Novostnyye lenty na osnove mashinnogo obucheniya kak ploshchadki dlya distributsii kontenta v Rossii [News feeds based on machine learning as platforms for content distribution in Russia]. Mediaskop. 2 (2019). http: www.mediascope.ru/2547 (Accessed 23 November 2019)

18. V. Lamburt, D. Trabun, D. Solomentsev, G. Bakunov. "Sekretnyy doklad" [Secret report]. Konferentsiya YAC (2017). https: events.yandex.ru/lib/talks/4489/ (Accessed 30 January 2018)

19. The first of its kind in the world: Yle NewsWatch's smart Voitto assistant shows recommendations directly on the lock screen. Yle (2018). https://yle.fi/aihe/artikkeli/2018/10/12/the-first-of-its-kind-in-the-world-yle-newswatchs-smart-voitto-assistant-shows (Accessed 29 July 2020)

20. N. Newman. Journalism, Media and Technology Trends and Predictions 2019. Reuters Institute for the Study of Journalism (2019)

21. N. Martin. Did A Robot Write This? How AI Is Impacting Journalism. Forbes (2019). https: www.forbes.com/sites/nicolemartin1/2019/02/08/did-a-robot-write-this-how-ai-is-impacting-journalism/#6fa572af7795 (Accessed 18 August 2020)

22. C. Baraniuk. China's Xinhua agency unveils AI news presenter. BBC (2018). https: www.bbc.com/news/technology-46136504 (Accessed 17 August 2020)

23. Public broadcaster's AI newsreader to make senryu poetry debut. Mainichi Japan (2019). https://mainichi.jp/english/articles/20190313/p2a/00m/0et/014000c (Accessed 6 July 2020)

24. E. Heinrichs. We need to talk! About artificial intelligence and ethics in journalism. Medium (2018). https://medium.com/datadriveninvestor/we-need-to-talk-about-artificial-intelligence-and-ethics-in-journalism-e2d52e5cd45f (Accessed 9 July2020)

25. P. Chadwick. As technology develops, so must journalists' codes of ethics. The Guardian (2018). https://www.theguardian.com/commentisfree/2018/jan/21/technology-codes-ethics-ai-artificial-intelligence (Accessed 18 August 2020)

26. A. Bzegezhev. "Mir perestal byt' chelovekomernym". Chernigovskaya o problemakh razvitiya iskusstvennogo intellekta ["The world won't be human oriented anymore" Chernigovskaya expresses her opinion about the issue of artificial intelligence development]. Snob (2020). https://snob.ru/entry/189353/?utm_source=vk&utm_medium=social&utm_campaign=snob&utm_content=37551320 (Accessed 27 August 2020)